

### TOWN OF NEEDHAM, MASSACHUSETTS PUBLIC WORKS DEPARTMENT

470 Dedham Ave., Needham, MA 02492 Telephone: (781) 455-7537 Fax: (781) 449-9023

2004 MAY -7 A 9: 38

May 4, 2004

U.S. Environmental Protection Agency Water Technical Unit P.O. Box 8127 Boston, MA 02114

RE: NPDES Phase II Small MS4 General Permit Annual Report

To Whom It May Concern:

Please find enclosed an executed copy of the Town of Needham's NPDES Phase II Annual Report for the period March 2003 thru March 2004.

Respectfully,

cc:

Richard P. Merson

Director of Public Works

Kate Fitzpatrick, Town Administrator

Y-7 A 9:38

### NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

Title: Director, Dept. of Public Works

Telephone #: 781-455-7534

Email: RMerson@town.needham.ma.us

### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:	Jabo P	
Printed Name:	James G. Healy	
Title:	Chairman, Board of Selectmen	
Date:	April 29, 2004	

# Part II. Self-Assessment

proposed permit application Permit Year 1 goals except as noted in Part III of this report. The Town of Needham has completed the required self-assessment and has determined that our municipality is in compliance with all

# Part III. Summary of Minimum Control Measures

# 1. Public Education and Outreach

Revised	1-4	1-3	1-2	1-1	BMP ID#
	Hazardous Waste Management	Using the Media	Flyer and Brochure Distribution and Web Site Link	Classroom education on Storm Water	BMP Description
	DPW Director	DPW Director	DPW Director	DPW Director	Responsible Dept./Person Name
	Track amount of hazardous waste collected, continue to distribute educational materials	One local cable public service announcement, one yearly press release, and one annual storm water article	Gather and make available one flyer and two fact sheets, provide web site link	3 sets of educational materials, 3 grade levels, 2 teacher workshops	Measurable Goal(s)
	Surplus Paint Program (collection) runs once/month from April thru Oct.; Hazardous Waste Day was held during the fall of 2003	"Talk About Needham" local public access show featured a segment about Needham's storm water drainage system in January, 2004. Storm water related article was published within the past year.	Flyer has been designed	Collected materials and distributed to schools	Progress on Goal(s) –  Permit Year 1  (Reliance on non-municipal partners indicated, if any)
	Continue offering both programs at the same frequency.	Continue to appear annually on the local public access channel. Issue press release and initiate another storm water related local newspaper article.	Publish flyer and distribute	Follow up with School Dept. to review curriculum	Planned Activities – Permit Year 2

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# 2. Public Involvement and Participation

Revised	2-5	2-4	2-3	2-2	2-1	BMP ID#
	Pet Waste By-Law	Storm Water Committee	Community Hotline	Stencil Storm Drains	Adopt-a-Stream Programs	BMP Description
	DPW Director	DPW Director	DPW Director	DPW Director	DPW Director	Responsible Dept./Person Name
	# of signs posted, # of educational materials, and # of dog licenses issued	Establish committee and hold annual meetings	Establish a hotline, track # of calls and problems / incidents remedied	Stencil 50 storm drains per year	Adopt two streams and track quantity of trash removed	Measurable Goal(s)
	No action	Committee has been established. The chair of the committee is the Director of the DPW, the vice chair is the Town Engineer supported by the Water & Sewer Superintendent.	No action	Areas prioritized several years ago for Boy Scout project which stenciled approximately 50 catch basins	No named stream from Booth St. to Hillside School was adopted by developer of Gerber Cir. subdivision	Progress on Goal(s) –  Permit Year 1  (Reliance on non-municipal partners indicated, if any)
	Will incorporate an informational brochure to be issued with each dog license.	Committee will hold an annual meeting in the fall to assess the SWMP.	Establish a hot line phone number	Town employees to continue to stencil catch basins routinely. Will contact Boy Scouts for continued participation	Establish Adopt-a-Stream groups	Planned Activities – Permit Year 2

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# 3. Illicit Discharge Detection and Elimination

Revised	Revised	3-5	3-2	3-1	BMP ID#
		Septic System Controls (Board of Health)	Illegal Dumping Education	Outfall Testing Program	BMP Description
		DPW Director	DPW Director	DPW Director	Responsible Dept./Person Name
		# of systems, # regularly maintained, # of educational flyers, # of trained people, # of failed systems	# of education tools distributed, # of illegal dumps reported, # of penalties given to dumpers, # of meritorious acknowledgements to citizens	Follow-up testing for eight areas, perform study to verify need for TV inspections	Measurable Goal(s)
		Between Jan. 2000 and Dec. 2003 there were 70 septic systems removed and connected to Town sewer system. Board of Health continues the management of their septic system program.	Illegal dumps were reported at Town well field on Charles River Street. Installed locked gate at this location to prevent access.	No action	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)
		BMP on-going	Will be included in public education/outreach program	Will do follow-up testing in eight areas listed in permit application	Planned Activities – Permit Year 2

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# 4. Construction Site Stormwater Runoff Control

Revised	Revised	Revised	4-2	4-1	BMP ID#
			Construction Reviews	Policy and Procedure Review and Updates	BMP Description
			Town Engineer	Town Engineer	Responsible Dept./Person Name
			Develop requirement to inspect sites, # of inadequate sites/plans reported by inspectors, # of non-compliant permits	Revise existing policies and procedures, develop Storm Drain Connection Permit requirement	Measurable Goal(s)
			Had two non-compliant sites reported and addressed. Both were in the 400 block of Hillside Avenue.	Storm Drain Connection Permit requirement established prior to Permit Year 1. Existing policies and procedures under review.	Progress on Goal(s) - Permit Year 1 (Reliance on non-municipal partners indicated, if any)
			Current practices to be on-going.	Update current policies and procedures.	Planned Activities – Permit Year 2

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# 5. Post-Construction Stormwater Management in New Development and Redevelopment

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	Revised						5-2									5-1			ID#	BMP
						Maintenance	BMP Inspection and								Construction Runoff	Policy for Post				BMP Description
						-	Town Engineer									Town Engineer		Name	Dept./Person	Responsible
		changes in effluent	and remedied and	of problems identified	annually, document #	maintained BMPs	Inspect all Town	details and policies	standard construction	and implement	requirement, develop	connection permit	control, a storm drain	construction runoff	policy for post-	Develop town-wide				Measurable Goal(s)
							No action.								Standard Construction Specifications.	Policy is listed in 1995 Needham	indicated, if any)	(Reliance on non-municipal partners	Permit Year 1	Progress on Goal(s) –
						inspections/maintenance.	Will initiate								2004.	Policy is scheduled to be revised in			Permit Year 2	Planned Activities -

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# 6. Pollution Prevention and Good Housekeeping in Municipal Operations

		Continue established program in the future	DPW Director	Integrated Pest Management	6-7
		projects by year five		Retrofit Opportunities	
		BMPs annually,		Owned BMPs for	
		Inspect 3 structural	DPW Director	Investigate Town	6-6
		drain pipe/yr.			
		basins and 475' of		Installations	
		Replace 10 catch	DPW Director	New Pipe and Structure	6-5
		pipe/yr.			
		19,000' of drain			
		pipe per year, jet flush			
		Clean 4,750' of drain	DPW Director	Pipe Cleaning	6-4
	CCTV equipment	drainage system/yr.			
	4,100 lf of pipe analyzed with in-house	Analyze 10% of	DPW Director	Pipe Inspections	6-3
		annually,			
		sweep all parking lots			
		sweep twice years 3-5,			
include Town parking lots.	collected debris documented.	annually years 1&2,			
Continue to sweep the streets and	Streets were swept and amount of	Sweep all streets	DPW Director	Street Cleaning	6-2
	catch basins.	and refine program		Program	
Continue program and develop	Current program in place for cleaning	Develop, collect data,	DPW Director	Predictive Catch Basin	6-1
	indicated, if any)				
	(Reliance on non-municipal partners		Name		
Permit Year 2	Permit Year 1		Dept./Person		ID#
Planned Activities -	Progress on Goal(s) -	Measurable Goal(s)	Responsible	BMP Description	BMP

## 6a. Additions

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# 7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) << if applicable>>

Revised	Revised	Revised	N/A	BMP ID#
				BMP Description
				Responsible Dept./Person Name
				Measurable Goal(s)
				Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)
				Planned Activities – Permit Year 2

### 7a. Additions

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## 7b. WLA Assessment

Not yet determined.

# Part V. Program Outputs & Accomplishments (OPTIONAL)

## **Programmatic**

\$318,663	(\$)	Annual program budget/expenditures
No	(y/n)	Stormwater management position created/staffed

# **Education, Involvement, and Training**

		School curricula implemented	■ material collected	<ul> <li>community participation</li> </ul>	<ul> <li>days sponsored</li> </ul>	Household Hazardous Waste Collection Days	Shoreline clean-up participation or quantity of shoreline miles cleaned	Stream teams established or supported	Stormwater management committee established	Estimated number of residents reached by education program(s)
		(y/n)	(tons or	(%)	(#)		(y/n or mi.)	(# or y/n)	(y/n)	(# or %)
			(tons or gal) 3+ tons		Two		ni.) No		No	
9										

### Construction

Number of construction starts (>1-acre)  Estimated percentage of construction starts adequately regulated for erosion and sediment control	(#)	
Site inspections completed	(# or %)	
Tickets/Stop work orders issued	(# or %)	
Fines collected	(# and \$)	
Complaints/concerns received from public	(#)	

# Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-	(%)	
construction stormwater control		
Site inspections completed	(# or %)	
Estimated volume of stormwater recharged	(gpy)	

# Operations and Maintenance

	Cost of screenings disposal	Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)	Qty. of screenings/debris removed from storm sewer infrastructure	Storm drain cleaned	Total number of structures cleaned	Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	Average frequency of catch basin cleaning (non-commercial/non-arterial streets)
	(\$)		(lbs. or tons) 196 tons	(LF or mi.)	(#)	(times/yr)	(times/yr)
	1,956	Landfill	196 tons				

## Legal/Regulatory

	In Place	TT: 1		
	Prior to			
	Phase II	Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
<ul> <li>Illicit Discharge Detection &amp; Elimination</li> </ul>				
■ Erosion & Sediment Control				
<ul> <li>Post-Development Stormwater Management</li> </ul>				
Accompanying Regulation Status (indicate with "X")				
■ Illicit Discharge Detection & Elimination				
■ Erosion & Sediment Control	-			
<ul> <li>Post-Development Stormwater Management</li> </ul>				

# Mapping and Illicit Discharges

(%)	% of population on septic systems
(%)	% of population on sewer
(est. gpd)	
(#)	Illicit connections removed
(#)	Illicit discharges identified
(# or %)	Outfalls inspected/screened
(%)	• GIS
(%)	• CADD
(%)	■ Paper/Mylar
	Mapping method(s)
(%)	System-Wide mapping complete
(#)	Estimated or actual number of outfalls
(%)	Outfall mapping complete

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Þ	Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	Once/yr.
احِ	streets) (	(times/yr)	Once/yr.
Q		(lbs. or tons) 825 tons	825 tons
ᄓ	ompost, beneficial use, etc.)	(location)	Landfill
ပ	Cost of sweepings disposal (\$	(\$)	17,267
<u>V</u>	Vacuum street sweepers purchased/leased (#	(#)	Three
۲	Vacuum street sweepers specified in contracts (y.	(y/n)	Yes
$\neg$			

	<ul> <li>Pesticides</li> </ul>		<ul> <li>Herbicides</li> </ul>	Fertilizers	Reduction in application on public land of: ("N/A" = never used; "100%" = elimination)
	(lbs. or %)		(lbs. or %)	(lbs. or %)	
needed basis	On an as	needed basis	On an as	0	

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### TOWN OF NEEDHAM, MASSACHUSETTS PUBLIC WORKS DEPARTMENT

### WATER & SEWER DIVISION

470 Dedham Ave., Needham, MA 02492 Fax: (781) 449-9023

Robert A. Lewis Superintendent (781) 455-7547 Paul R. Evans Assistant Superintendent (781) 455-7563 Carol A. Sinesi MAY?
Assistant Superintendent

William T. Wanberg
Water Treatment Manager
(781) 416-4071

MA 12: 25

Memorandum

To: U.S. Environmental Protection Agency

Water Technical Unit

From: Bob Lewis, Superintendent

Date: 4/30/2004

**Re:** NPDES Report

Attached, please find a copy of the Town of Needham NPDES Report for the periods of March 03 to March 04.

Please note this copy is unexecuted. We are unable to obtain the appropriate signature at this time. A fully executed copy will be forwarded on or before May 7, 2004.



Municipality/Organization:	Town of Needham		
EPA NPDES Permit Number:			
MaDEP Transmittal Number:	W-041019	2005 JUN -4	A 12: 25
Annual Report Number & Reporting Period:	No. 1: March 03-March	h	

### NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

Contact Person	n: Richard P. Merson	Title: Director, Dept. of Public Works
Telephone #:	781-455-7534	Email: RMerson@town.needham.ma.us

### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:		_
Printed Name:	James G. Healy	
Title:	Chairman, Board of Selectmen	
Date:	April 29, 2004	

## Part II. Self-Assessment

The Town of Needham has completed the required self-assessment and has determined that our municipality is in compliance with all proposed permit application Permit Year 1 goals except as noted in Part III of this report.

# Part III. Summary of Minimum Control Measures

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Revised	1-4		1-3	1-2	1-1	BMP ID#
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	DPW Director		DPW Director	DPW Director	DPW Director	Responsible Dept./Person Name
	Track amount of hazardous waste collected, continue to distribute educational materials	one yearly press release, and one annual storm water article	One local cable public service announcement,	Gather and make available one flyer and two fact sheets, provide web site link	3 sets of educational materials, 3 grade levels, 2 teacher workshops	Measurable Goal(s)
	Surplus Paint Program (collection) runs once/month from April thru Oct.; Hazardous Waste Day was held during the fall of 2003	Needham's storm water drainage system in January, 2004. Storm water related article was published within the past year.	"Talk About Needham" local public access show featured a segment about	Flyer has been designed	Collected materials and distributed to schools	Progress on Goal(s) –  Permit Year 1  (Reliance on non-municipal partners indicated, if any)
	Continue offering both programs at the same frequency.	press release and initiate another storm water related local newspaper article.	Continue to appear annually on the local public access channel. Issue	Publish flyer and distribute	Follow up with School Dept. to review curriculum	Planned Activities – Permit Year 2

# 2. Public Involvement and Participation

Revised	2-5	2-4	C-2	2-2	2-1	ID#
	Pet Waste By-Law	Storm Water Committee	Community Hotline	Stencil Storm Drains	Adopt-a-Stream Programs	BMP Description
	DPW Director	DPW Director	DPW Director	DPW Director	DPW Director	Responsible Dept./Person Name
	# of signs posted, # of educational materials, and # of dog licenses issued	Establish committee and hold annual meetings	Establish a hotline, track # of calls and problems / incidents remedied	Stencil 50 storm drains per year	Adopt two streams and track quantity of trash removed	Measurable Goal(s)
	No action	Committee has been established. The chair of the committee is the Director of the DPW, the vice chair is the Town Engineer supported by the Water & Sewer Superintendent.	No action	Areas prioritized several years ago for Boy Scout project which stenciled approximately 50 catch basins	No named stream from Booth St. to Hillside School was adopted by developer of Gerber Cir. subdivision	Progress on Goal(s) -  Permit Year 1  (Reliance on non-municipal partners indicated, if any)
	Will incorporate an informational brochure to be issued with each dog license.	Committee will hold an annual meeting in the fall to assess the SWMP.	Establish a hot line phone number	Town employees to continue to stencil catch basins routinely. Will contact Boy Scouts for continued participation	Establish Adopt-a-Stream groups	Planned Activities – Permit Year 2

# 3. Illicit Discharge Detection and Elimination

Revised	Revised	3-3	3-2	3-1	ID #
	-	Septic System Controls (Board of Health)	Illegal Dumping Education	Outfall Testing Program	BMP Description
		DPW Director	DPW Director	DPW Director	Responsible Dept./Person Name
		# of systems, # regularly maintained, # of educational flyers, # of trained people, # of failed systems	# of education tools distributed, # of illegal dumps reported, # of penalties given to dumpers, # of meritorious acknowledgements to citizens	Follow-up testing for eight areas, perform study to verify need for TV inspections	Measurable Goal(s)
		Between Jan. 2000 and Dec. 2003 there were 70 septic systems removed and connected to Town sewer system. Board of Health continues the management of their septic system program.	Illegal dumps were reported at Town well field on Charles River Street. Installed locked gate at this location to prevent access.	No action	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)
		BMP on-going	Will be included in public education/outreach program	Will do follow-up testing in eight areas listed in permit application	Planned Activities – Permit Year 2

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# 4. Construction Site Stormwater Runoff Control

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Revised	Revised	Revised	4-2	4-1	BMP ID#
			Construction Reviews	Policy and Procedure Review and Updates	BMP Description
			Town Engineer	Town Engineer	Responsible Dept./Person Name
			Develop requirement to inspect sites, # of inadequate sites/plans reported by inspectors, # of non-compliant permits	Revise existing policies and procedures, develop Storm Drain Connection Permit requirement	Measurable Goal(s)
			Had two non-compliant sites reported and addressed. Both were in the 400 block of Hillside Avenue.	Storm Drain Connection Permit requirement established prior to Permit Year 1. Existing policies and procedures under review.	Progress on Goal(s) – Permit Year 1 (Reliance on non-municipal partners indicated, if any)
			Current practices to be on-going.	Update current policies and procedures.	Planned Activities – Permit Year 2

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# 5. Post-Construction Stormwater Management in New Development and Redevelopment

Revised	5-2	5-1	BMP ID#
	BMP Inspection and Maintenance	Policy for Post Construction Runoff	BMP Description
	Town Engineer	Town Engineer	Responsible Dept./Person Name
	Inspect all Town maintained BMPs annually, document # of problems identified and remedied and changes in effluent	Develop town-wide policy for post-construction runoff control, a storm drain connection permit requirement, develop and implement standard construction details and policies	Measurable Goal(s)
	No action.	Policy is listed in 1995 Needham Standard Construction Specifications.	Progress on Goal(s) –  Permit Year 1  (Reliance on non-municipal partners indicated, if any)
	Will initiate inspections/maintenance.	Policy is scheduled to be revised in 2004.	Planned Activities Permit Year 2

## 5a. Additions

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# 6. Pollution Prevention and Good Housekeeping in Municipal Operations

		program in the future		Management	
		Continue established	DPW Director	Integrated Pest	6-7
		projects by year five			
		implement two retrofit	-	Retrofit Opportunities	_
· -		BMPs annually,		Owned BMPs for	
		Inspect 3 structural	DPW Director	Investigate Town	6-6 
		drain pipe/yr.			
		basins and 475' of		Installations	
		Replace 10 catch	DPW Director	New Pipe and Structure	6-5
		pipe/уг.			
		19,000' of drain			
		pipe per year, jet flush			
		Clean 4,750° of drain	DPW Director	Pipe Cleaning	6-4
		drainage system/yr.			
	4,100 lf of pipe analyzed with in-house	Analyze 10% of	DPW Director	Pipe Inspections	6-3
		annually,			
		sweep all parking lots			
,		sweep twice years 3-5,			
include Town parking lots.	collected debris documented.	annually years 1&2,			
Continue to sweep the streets and	Streets were swept and amount of	Sweep all streets	DPW Director	Street Cleaning	6-2
(	catch basins.	and refine program		Program	
Continue program and develop	Current program in place for cleaning	Develop, collect data,	DPW Director	Predictive Catch Basin	<u>6-1</u>
	indicated, if any)		, and		
	@aliana an		Name		
Permit Vear 2	Permit Year 1		Dept./Person		ID#
Planned Activities -	Progress on Goal(s) -	Measurable Goal(s)	Responsible	BMP Description	BIMI
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### 6a. Additions

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# 7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) << if applicable>>

Revised	Revised		Revised	N/A		BMP
						BMP Description
		·			Name	Responsible Dept./Person
						Measurable Goal(s)
					(Reliance on non-municipal partners indicated, if any)	Progress on Goal(s) – Permit Year 1
						Planned Activities – Permit Year 2

### 7a. Additions

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## 7b. WLA Assessment

Not yet determined.

# Part V. Program Outputs & Accomplishments (OPTIONAL)

### Programmatic

	Annual program budget/expenditures (\$)	Stormwater management position created/staffed (y/n)
	\$318,663	No

# Education, Involvement, and Training

	School curricula implemented (y/n)	material collected (tons or	community participation (%)	days sponsored (#)	Household Hazardous Waste Collection Days	Shoreline clean-up participation or quantity of shoreline miles cleaned (y/n or	Stream teams established or supported (# or y/	Stormwater management committee established (y/n)	Estimated number of residents reached by education program(s) (# or %
-	(y/n)	(tons or gal) 3+ tons	(%)	(#)		(y/n or mi.)	(# or y/n)	(y/n)	(# or %)
		3+ tons		Two		No	No	No	

## Legal/Regulatory

Post-Development Stormwater Management	<ul> <li>Erosion &amp; Sediment Control</li> </ul>	<ul> <li>Illicit Discharge Detection &amp; Elimination</li> </ul>	Accompanying Regulation Status (indicate with "X")	<ul> <li>Post-Development Stormwater Management</li> </ul>	Erosion & Sediment Control	<ul> <li>Illicit Discharge Detection &amp; Elimination</li> </ul>	Regulatory Mechanism Status (indicate with "X")		
							-	Prior to Phase II	In Place
								Under Review	
								Drafted	
								Adopted	

# Mapping and Illicit Discharges

% of population on septic systems	% of population on sewer		Illicit connections removed	Illicit discharges identified	Outfalls inspected/screened	GIS	CADD	Paper/Mylar	Mapping method(s)	System-Wide mapping complete	Estimated or actual number of outfalls	Outfall mapping complete
%)	(%)	(est. gpd)	(#)	(#)	(# or %)	(%)	(%)	(%)		(%)	(#)	(%)

### Construction

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# Post-Development Stormwater Management

# **Operations and Maintenance**

Vacuum street sweepers specified in contracts	Vacuum street sweepers purchased/leased	Cost of sweepings disposal	Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	Qty. of sand/debris collected by sweeping	Average frequency of street sweeping (	Average frequency of street sweeping (non-commercial/non-arterial streets)
					Average frequency of street sweeping (commercial/arterial or other critical streets)	)
(y/n)	(#)	(\$)	(location)	(lbs. or tons) 825 tons	(times/yr)	(times/yr)
Yes	Three	17,267	Landfill	825 tons	Once/yr.	Once/yr.

• Pesticides (lbs. or %) On an as
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% Kac % KCl % Sand 9 (y/n) No (y/n) No (y/n) No (y/n) No (lbs. or %) (y/n) Yes (y/n) No	Manual control spreaders used  Automatic or Zero-velocity spreaders used  Estimated net reduction in typical year salt application  Salt pile(s) covered in storage shed(s)  Storage shed(s) in design or under construction
	Manual control spreaders used Automatic or Zero-velocity spreaders used Estimated net reduction in typical year salt application Salt pile(s) covered in storage shed(s) Storage shed(s) in design or under construction
	Manual control spreaders used Automatic or Zero-velocity spreaders used Estimated net reduction in typical year salt application Salt pile(s) covered in storage shed(s)
	Manual control spreaders used  Automatic or Zero-velocity spreaders used  Estimated net reduction in typical year salt application
	Manual control spreaders used  Automatic or Zero-velocity spreaders used
	Manual control spreaders used
	Pre-wetting techniques utilized
% Kac % KCl	
% Kac	
% CMA	
% MgCl <sub>2</sub>	
% CaCl <sub>2</sub>	
% NaCl 91	Anti-/De-Icing products and ratios